WHAT IS CLAIMED IS:

1. A process for producing pearlite from an iron containing article comprising the steps of, (a) heating an iron containing article comprising at least 50 wt % iron for a time and at a temperature sufficient to convert at least a portion of said article from a ferritic structure to an austenitic structure, (b) exposing said austenitic structure, for a time sufficient and at a temperature of about 727 to about 900°C, to a carbon supersaturated environment to diffuse carbon into said austenitic structure and (c) cooling said iron containing article to form a continuous pearlite structure.

2. The process of claim 1 wherein said iron containing article further comprises silicon, manganese, and mixtures thereof.

3. The process of claim 2 wherein said carbon supersaturated environment is selected from the group of gases consisting of CO, CH_4, hydrocarbon gases, C_3H_8 and mixtures thereof with hydrogen, oxygen, nitrogen, carbon monoxide, and water.

4. The process of claim 3 wherein said carbon supersaturated environment is a CO/H_2 gaseous environment.

5. The process of claim 4 wherein when said CO/H_2 gaseous environment is selected as said carbon supersaturated environment, the hydrogen contents in carbon monoxide ranges from about 2.5 vol % to about 90 vol %.

6. The process of claim 1 wherein said time sufficient to diffuse carbon into the austenitic structure ranges from about 1 minute to about 50 hours.

7. The process of claim 6 wherein said thickness of pearlite is at least about 10 microns.

8. The process of claim 5 wherein the hydrogen content in carbon monoxide ranges from about 10 vol % to about 60 vol %.